

PATENT COOPERATION TREATY

PCT

NOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

From the INTERNATIONAL BUREAU

To:

DOWNING, Michael, Philip
Fry Heath & Spence
The Old College
53 High Street
Horley
Surrey RH6 7BN
ROYAUME-UNI

RECEIVED

17 JAN 2000

| | |
|--|---|
| Date of mailing (day/month/year) 29 December 1999 (29.12.99) | |
| Applicant's or agent's file reference P57554D | IMPORTANT NOTIFICATION |
| International application No. PCT/GB99/03724 | International filing date (day/month/year) 09 November 1999 (09.11.99) |
| International publication date (day/month/year) Not yet published | Priority date (day/month/year) 10 November 1998 (10.11.98) |
| Applicant COLSON ENGINEERING LIMITED et al | |

- The applicant is hereby notified of the date of receipt (except where the letters "NR" appear in the right-hand column) by the International Bureau of the priority document(s) relating to the earlier application(s) indicated below. Unless otherwise indicated by an asterisk appearing next to a date of receipt, or by the letters "NR", in the right-hand column, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- This updates and replaces any previously issued notification concerning submission or transmittal of priority documents.
- An asterisk (*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b). In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- The letters "NR" appearing in the right-hand column denote a priority document which was not received by the International Bureau or which the applicant did not request the receiving Office to prepare and transmit to the International Bureau, as provided by Rule 17.1(a) or (b), respectively. In such a case, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

| <u>Priority date</u> | <u>Priority application No.</u> | <u>Country or regional Office or PCT receiving Office</u> | <u>Date of receipt of priority document</u> |
|-------------------------|---------------------------------|---|---|
| 10 Nove 1998 (10.11.98) | 9824532.7 | GB | 16 Dece 1999 (16.12.99) |

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer

Olivia RANAIVOJAONA

Telephone No. (41-22) 338.83.38

003033434

PATENT COOPERATION TREATY

PCT

NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

From the INTERNATIONAL BUREAU

To:
DOWNING, Michael, Philip
Fry Heath & Spence
The Old College
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Surrey RH6 7BN
ROYAUME-UNI

RECEIVED

26 MAY 2000

| | | | |
|--|---|---|--|
| Date of mailing (day/month/year) 18 May 2000 (18.05.00) | | IMPORTANT NOTICE | |
| Applicant's or agent's file reference P57554D | | | |
| International application No. PCT/GB99/03724 | International filing date (day/month/year) 09 November 1999 (09.11.99) | Priority date (day/month/year) 10 November 1998 (10.11.98) | |
| Applicant COLSON ENGINEERING LIMITED et al | | | |

1. Notice is hereby given that the International Bureau has communicated, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this Notice:
AU,CN,JP,KP,KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present Notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
AE,AL,AM,AP,AT,AZ,BA,BB,BG,BR,BY,CA,CH,CU,CZ,DE,DK,EA,EE,EP,ES,FI,GB,GD,GE,GH,GM,HR,HU,ID,IL,IN,IS,KE,KG,KZ,LC,LK,LR,LS,LT,LU,LV,MD,MG,MK,MN,MW,MX,NO,NZ,OA,PL,RU,SE,SG,SK,SL,TJ,TM,TR,TT,UA,UG,UZ,VN,YU,ZA,ZW
The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this Notice is a copy of the international application as published by the International Bureau on 18 May 2000 (18.05.00) under No. WO 00/27479

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a demand for international preliminary examination must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.
It is the applicant's sole responsibility to monitor the 19-month time limit.
Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination.

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the national phase, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.
For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and Volume II of the PCT Applicant's Guide.

| | |
|---|---|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41-22) 740.14.35 Form PCT/IB/308 (July 1996) | Authorized officer J. Zahra Telephone No. (41-22) 338.83.38 |
|---|---|

**NOTICE INFORMING THE APPLICANT OF THE COMMUNICATION OF
THE INTERNATIONAL APPLICATION TO THE DESIGNATED OFFICES**

| | |
|---|--|
| Date of mailing (day/month/year) 18 May 2000 (18.05.00) | IMPORTANT NOTICE |
| Applicant's or agent's file reference P57554D | International application No. PCT/GB99/03724 |
| <p>The applicant is hereby notified that, at the time of establishment of this Notice, the time limit under Rule 46.1 for making amendments under Article 19 has not yet expired and the International Bureau had received neither such amendments nor a declaration that the applicant does not wish to make amendments.</p> | |

PATENT COOPERATION TREATY

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NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents
United States Patent and Trademark
Office
Box PCT
Washington, D.C.20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

| | |
|--|--|
| Date of mailing (day/month/year) 19 July 2000 (19.07.00) | |
| International application No. PCT/GB99/03724 | Applicant's or agent's file reference P57554D |
| International filing date (day/month/year) 09 November 1999 (09.11.99) | Priority date (day/month/year) 10 November 1998 (10.11.98) |
| Applicant READE, Charles, Osborn | |

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

12 June 2000 (12.06.00)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election
- ☒
- was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

| | |
|---|-------------------------------------|
| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland | Authorized officer Juan Cruz |
| Facsimile No.: (41-22) 740.14.35 | Telephone No.: (41-22) 338.83.36 |



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification⁷:

A62C 4/02

A1

(11) International Publication Number:

WO 00/27479

(43) International Publication Date:

18 May 2000 (18.05.00)

(21) International Application Number: PCT/GB99/03724

(22) International Filing Date: 9 November 1999 (09.11.99)

(30) Priority Data:
9824532.7 10 November 1998 (10.11.98) GB

(71) Applicant (for all designated States except US): COLSON ENGINEERING LIMITED [GB/GB]; Unit 4, Argyle Commercial Centre, Swindon, Wiltshire SN2 6AR (GB).

(72) Inventor; and

(75) Inventor/Applicant (for US only): READE, Charles, Osborn [GB/GB]; 29 St. Swithuns Road, Kennington, Oxford OX1 5PU (GB).

(74) Agents: DOWNING, Michael, Philip et al.; Fry Heath & Spence, The Old College, 53 High Street, Horley, Surrey RH6 7BN (GB).

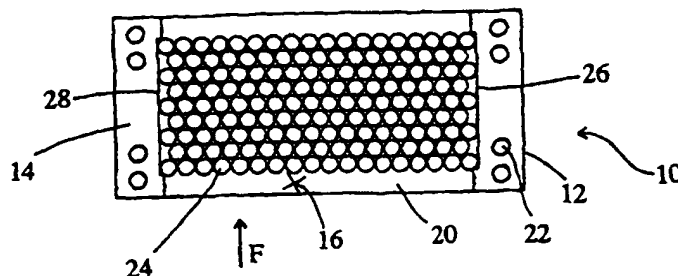
(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, RU, SE, SG, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published

With international search report.

Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: FLAME ARRESTER



(57) Abstract

A flame arrester comprises a flow passage in which are disposed a plurality of generally aligned rods such that fluids flowing in the passage must pass between the rods. Rows of rods are used to construct the flame arrester element, ideally closely spaced and these present a natural surface over which air can flow with minimal flow resistance. The rods can be of any size and the gaps between them can be selected to arrest explosions due to different gases or vapours in air. The rod diameter can be altered to withstand different levels of explosion pressure, making it possible to construct both deflagration and detonation flame arresters. The rods can be made of solid material or tubes. If tubes are used these can carry cooling fluid making the arrester more effective at coping with continuous burning. Additional tubes of larger diameter and spacing can be added upstream. Rods in parallel rows can be offset with respect to the adjacent row. Suitable offset angles can vary. Examples are between 30 and 60 degrees, but this is not exhaustive. This arrester lends itself to being cleaned mechanically, simply by introducing a linear scraping device. This preferably passes over each rod to keep it clean. The scraping device can either be operated by manual effort or automatically in a variety of ways.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

| | | | | | | | |
|----|----------------------------|----|--|----|--|----|----------------------------|
| AL | Albania | ES | Spain | LS | Lesotho | SI | Slovenia |
| AM | Armenia | FI | Finland | LT | Lithuania | SK | Slovakia |
| AT | Austria ? | FR | France ✓ | LU | Luxembourg | SN | Senegal |
| AU | Australia ✓ | GA | Gabon | LV | Latvia | SZ | Swaziland |
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| BG | Bulgaria | HU | Hungary ? | MN | Mongolia | TT | Trinidad and Tobago |
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| BR | Brazil ✓ | IL | Israel ✓ | MW | Malawi | UG | Uganda |
| BY | Belarus | IS | Iceland | MX | Mexico ✓ | US | United States of America ✓ |
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| DE | Germany ✓ | LK | Sri Lanka | SE | Sweden ✓ | | |
| DK | Denmark ? | LR | Liberia | SG | Singapore ✓ | | |
| EE | Estonia | | | | | | |

INTERNATIONAL SEARCH REPORT

International Application No.

PCT/GB 99/03724

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A62C4/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 A62C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | US 2 068 421 A (LONG) 19 January 1937 (1937-01-19) | 1-6, 9, 10, 16-18 |
| Y | page 3, left-hand column, line 22 - line 63; figures 6, 7 | 11-14 |
| Y | GB 2 183 020 A (BARNES ECAS LIMITED) 28 May 1987 (1987-05-28) | 11-14 |
| X | FR 526 178 A (ROLLAND) 3 October 1921 (1921-10-03) | 1-6, 9, 10, 16 |
| Y | page 1, line 29 - page 2, line 14; figures | 11-15, 17-19 |
| Y | US 4 307 673 A (CAUGHEY ROBERT A) 29 December 1981 (1981-12-29) | 11-14 |
| | column 2, line 13 - column 4, line 3; figures | |
| | -/-- | |

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "Z" document member of the same patent family

Date of the actual completion of the international search

18 April 2000

Date of mailing of the international search report

04/05/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Triantaphillou, P

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 99/03724

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|----------|--|-----------------------|
| Y | <p>WO 94 00197 A (CHEM MECH ENGINEERING LAB) 6 January 1994 (1994-01-06) page 5, line 36 -page 17, line 27; figures -----</p> | 15,17-19 |

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 99/03724

| Patent document cited in search report | | Publication date | Patent family member(s) | Publication date |
|---|---|---------------------|----------------------------|---------------------|
| US 2068421 | A | 19-01-1937 | NONE | |
| GB 2183020 | A | 28-05-1987 | NONE | |
| FR 526178 | A | 03-10-1921 | NONE | |
| US 4307673 | A | 29-12-1981 | NONE | |
| WO 9400197 | A | 06-01-1994 | AT 143820 T | 15-10-1996 |
| | | | AU 675953 B | 27-02-1997 |
| | | | AU 4414493 A | 24-01-1994 |
| | | | CA 2139360 A | 06-01-1994 |
| | | | DE 69305351 D | 14-11-1996 |
| | | | DE 69305351 T | 28-05-1997 |
| | | | EP 0649327 A | 26-04-1995 |
| | | | MX 9303971 A | 29-04-1994 |
| | | | SG 49198 A | 18-05-1998 |
| | | | US 5415233 A | 16-05-1995 |

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

DOWNING, MICHAEL P
FRY HEATH & SPENCE
The Old College
53 High Street
Horley, Surrey RH6 7BN
GRANDE BRETAGNE

RECEIVED

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT

(PCT Rule 71.1)

Date of mailing
(day/month/year) 24.01.2001

Applicant's or agent's file reference
P57554D

IMPORTANT NOTIFICATION

International application No.
PCT/GB99/03724

International filing date (day/month/year)
09/11/1999

Priority date (day/month/year)
10/11/1998

Applicant
COLSON ENGINEERING LIMITED et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer

Eich, M

Tel. +49 89 2399-7578



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | |
|---|--|--|
| Applicant's or agent's file reference P57554D | FOR FURTHER ACTION <div style="font-size: small;">See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)</div> | |
| International application No. PCT/GB99/03724 | International filing date (<i>day/month/year</i>) 09/11/1999 | Priority date (<i>day/month/year</i>) 10/11/1998 |
| International Patent Classification (IPC) or national classification and IPC A62C4/02 | | |
| Applicant COLSON ENGINEERING LIMITED et al. | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

| | |
|---|---|
| Date of submission of the demand 12/06/2000 | Date of completion of this report 24.01.2001 |
| Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div> | Authorized officer Schut, T Telephone No. +49 89 2399 8970 |



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/03724

I. Basis of the report

1. This report has been drawn on the basis of *(substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments (Rules 70.16 and 70.17).):*

Description, pages:

1-9 as originally filed

Claims, No.:

1-18 as received on 14/12/2000 with letter of 08/12/2000

Drawings, sheets:

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB99/03724

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|------|--------|------------|
| Novelty (N) | Yes: | Claims | 1-14,16-18 |
| | No: | Claims | |
| Inventive step (IS) | Yes: | Claims | |
| | No: | Claims | 1-14,16-18 |
| Industrial applicability (IA) | Yes: | Claims | 1-18 |
| | No: | Claims | |

2. Citations and explanations
see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:
see separate sheet

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB99/03724

Re Item V: Reasoned statement with regard to novelty, inventive step or industrial applicability

FR 526 178 A (figs. 1, 3) discloses a flame arrester comprising a flow passage in which is disposed a two dimensional array of adjacent section rods (29), each being generally co-aligned and arranged transverse to the flow direction, such that fluids flowing in the passage must pass between the rods.

The subject-matter of claim 1 differs from the above described in that the rods have a circular (cross) section.

This document mentions that the rods can have any polygonal shape (p. 1, l. 49-51). It is obvious for the skilled person that a circular cross section would also be possible, but would have the drawback that it reduces the surface to volume ratio. This may be less desirable if a cooling effect is to be obtained. The use of a circular cross section is an obvious choice and does not have a surprising effect.

This document also discloses the features of claims 2-6, 8-9. Since the document does not mention the flow direction, it is up to the skilled person to decide whether the tubes shown in fig. 3 should be down or upstream of the solid bars (claim 6). It is also likely that the flow passage is cylindrical (claim 14).

cylinder, *noun* a solid figure of uniform cross-section generated by a straight line remaining parallel to a fixed axis and moving round a closed curve, ordinarily in a circle perpendicular to the axis (giving a *right circular cylinder*); from Chambers Dictionary

US 2 068 421 (figs. 6, 7) discloses a flame arrester comprising a flow passage in which is disposed a plurality of circular section rods (29), each being generally co-aligned and arranged transverse to the flow direction, such that fluids flowing in the passage must pass between the rods. This document discloses the features of claims 2-6, 8-10, 14 (cylindrical does not necessarily mean circular), 16-18.

GB 2 183 020 A (p. 2, l. 14-26) discloses a flame arrester with a scraping device having the features mentioned in claims 11-13. It is obvious for the skilled person to apply the teaching of this document to the device known from FR 526 178 A in order to avoid the build up of material between the rods. The shape of the scraping device would of

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/GB99/03724

course have to be adjusted to the flame arrester. In this respect GB 2 183 020 A suggest various possibilities (p. 2, l. 5-10). It would be obvious for the skilled person to adjust the spacing between the rod if this were required for cleaning purposes.

Re Item VII Certain defects in the international application

The independent claim should have been in the two-part form in accordance with Rule 6.3(b) PCT. Those features known in combination from FR 526 178 A being placed in a preamble (Rule 6.3(b)(i) PCT) and with the remaining features being included in a characterising part (Rule 6.3(b)(ii) PCT).

The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

FR-A-2 602 428 and GB 2 183 020 A has not been discussed in the description (Rule 5.1(a)(ii) PCT).

Re Item VIII Certain observations on the international application

Claim 15 contains a reference to the drawings which is not allowable, PC-III, 4.10.